

### **WHAT IS CLAIMED IS:**

1. A nutritional composition suitable for facilitating bone healing in a mammal, comprising lysine, proline, ascorbic acid, copper, and vitamin B<sub>6</sub>.
2. The nutritional composition of claim 1, wherein the nutritional composition comprises  
5 230 mg – 10 grams lysine, 120 mg - 5 grams proline, 360 mg – 15 grams ascorbic acid, 1.5 µg – 20 mg copper, and 0.2 mg - 20 mg vitamin B<sub>6</sub>.
3. The nutritional composition of claim 1, wherein the nutritional composition comprises 1,010 mg – 8 grams lysine, 560 mg - 4 grams proline, 1,500 mg – 9 grams ascorbic acid, 2 µg – 6 mg copper, and 0.5 mg – 10 mg vitamin B<sub>6</sub>.
- 10 4. The nutritional composition of claim 1, wherein the nutrition composition comprises 1,010 mg lysine, 560 mg proline, 1,500 mg ascorbic acid, 330 µg copper and 10 mg vitamin B<sub>6</sub>.
5. The nutritional composition of claim 1, wherein the nutritional composition further  
15 comprises vitamin A, vitamin D<sub>3</sub>, vitamin E, vitamin B<sub>1</sub>, vitamin B<sub>2</sub>, niacin, folic acid, vitamin B<sub>12</sub>, biotin, pantothenic acid, calcium, phosphorus, magnesium, zinc, selenium, manganese, chromium, molybdenum, potassium, citrus fruit peel bioflavanoids, arginine, cysteine, inositol, carnitine, coenzyme Q<sub>10</sub>, and pycnogenol.
6. The nutritional composition of claim 5, wherein the nutritional composition comprises  
20 67 µg -100 mg vitamin A, 0.7 µg - 50 µg vitamin D<sub>3</sub>, 0.7 µg - 50 µg vitamin E, 1.4 mg – 8 mg vitamin B<sub>1</sub>, 1.4 mg – 8 mg vitamin B<sub>2</sub>, 9 mg – 250 mg niacin, 18 µg – 500 µg folic acid, 4 µg – 100 µg vitamin B<sub>12</sub>, 13 µg - 400 µg biotin, 8 mg – 100 mg pantothenic acid, 7 mg – 40 mg calcium, 3 mg – 300 mg phosphorus, 40 mg – 200 mg magnesium, 0.5 mg – 10 mg zinc, 20 µg - 300 µg selenium, 0.8 mg – 15 mg manganese, 2 µg - 200 µg chromium, 0.8 µg - 100 µg molybdenum, 4 mg – 300 mg potassium, 20 mg – 500 mg citrus fruit peel bioflavanoids, 10 mg – 500 mg arginine, 10  
25 mg – 400 mg cysteine, 5 mg – 400 mg inositol, 5 mg – 400 mg carnitine, 1.6 mg – 70 mg coenzyme Q<sub>10</sub>, and 1.6 mg – 70 mg pycnogenol.
7. The nutritional composition of claim 5, wherein the nutritional composition comprises  
30 166 µg -50 mg vitamin A, 1.65 µg - 20 µg vitamin D<sub>3</sub>, 1.65 µg - 20 µg vitamin E, 3.5 mg – 7 mg vitamin B<sub>1</sub>, 3.5 mg – 7 mg vitamin B<sub>2</sub>, 22.5 mg – 100 mg niacin, 45 µg – 300 µg folic acid, 10 µg – 50 µg vitamin B<sub>12</sub>, 32 µg - 300 µg biotin, 20 mg – 60 mg pantothenic acid, 17 mg – 35 mg calcium, 7 mg – 100 mg phosphorus, 50 mg – 100 mg magnesium, 3 mg – 8 mg zinc, 30 µg - 250 µg selenium, 1 mg – 3.25 mg manganese, 2 µg - 75 µg chromium, 2 µg - 75 µg molybdenum, 8 mg – 200 mg potassium, 50 mg – 250 mg citrus fruit peel bioflavanoids, 100 mg – 300 mg arginine, 80 mg – 200 mg  
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cysteine, 80 mg – 200 mg inositol, 80 mg – 200 mg carnitine, 3 mg – 35 mg coenzyme Q<sub>10</sub>, and 3 mg – 35 mg pycnogenol.

8. The nutritional composition of claim 5, wherein the nutritional composition comprises 333 µg vitamin A, 3.3 µg vitamin D<sub>3</sub>, 3.3 µg vitamin E, 7 mg vitamin B<sub>1</sub>, 7 mg vitamin B<sub>2</sub>, 45 mg niacin, 90 µg folic acid, 20 µg vitamin B<sub>12</sub>, 65 µg biotin, 40 mg pantothenic acid, 35 mg calcium, 15 mg phosphorus, 40 mg magnesium, 7 mg zinc, 20 µg selenium, 1.3 mg manganese, 10 µg chromium, 4 µg molybdenum, 20 mg potassium, 100 mg citrus fruit peel bioflavanoids, 40 mg arginine, 35 mg cysteine, 35 mg inositol, 35 mg carnitine, 7 mg coenzyme Q<sub>10</sub>, and 7 mg pycnogenol.
9. The nutritional composition of claims 1 or 5, wherein the nutritional composition contains 27-34 % wt lysine, 14-16 % wt proline, and 42-47 % wt ascorbic acid.
10. The nutritional composition of claims 1 or 5, wherein the mammal is a human.
11. A method for facilitating bone healing in a mammal, comprising the step of administering to a mammal in need thereof an effective amount of a nutritional composition comprising lysine, proline, ascorbic acid, copper, and vitamin B<sub>6</sub>.
12. The method of claim 11, wherein the effective amount of the nutritional composition is a daily dosage of 3.2 – 139 mg/kg lysine, 1.7 – 69.4 mg/kg proline, 5 – 208.3 mg/kg ascorbic acid, 0.02 – 278 µg/kg copper, 2.78 – 279 µg/kg vitamin B<sub>6</sub>.
13. The method of claim 11, wherein the effective amount of the nutritional composition is a daily dosage of 14 – 111 mg/kg lysine, 7.8 – 55.6 mg/kg proline, 20.8 - 125 mg/kg ascorbic acid, 0.03 – 83.3 µg/kg copper, and 6.94 – 139 µg/kg vitamin B<sub>6</sub>.
14. The method of claim 11, wherein the effective amount of the nutritional composition is a daily dosage of 14 mg/kg lysine, 7.8 mg/kg proline, 20.8 mg/kg ascorbic acid, 4.6 µg/kg copper, 139 µg/kg vitamin B<sub>6</sub>.
15. The method of claim 11, wherein the nutritional composition contains 27-34 % wt lysine, 14-16 % wt proline , and 42-47 % wt ascorbic acid.
16. The method of claim 11, wherein the nutritional composition further comprises vitamin A, vitamin D<sub>3</sub>, vitamin E, vitamin B<sub>1</sub>, vitamin B<sub>2</sub>, niacin, folic acid, vitamin B<sub>12</sub>, biotin, pantothenic acid, calcium, phosphorus, magnesium, zinc, selenium, manganese, chromium, molybdenum, potassium, citrus fruit peel bioflavanoids, arginine, cysteine, inositol, carnitine, coenzyme Q<sub>10</sub>, and pycnogenol.
17. The method of claim 11, wherein the nutritional composition further comprises 0.9-1,390 µg/kg vitamin A, 0.01-0.694 µg/kg vitamin D<sub>3</sub>, 0.01-0.694 µg/kg vitamin E, 19.4-111 µg/kg vitamin B<sub>1</sub>, 19.4-111 µg/kg vitamin B<sub>2</sub>, 125-3,472 µg/kg niacin, 0.25-6.94 µg/kg folic acid, 0.05-1.39 µg/kg vitamin B<sub>12</sub>, 0.181-5.56 µg/kg biotin, 111-1,390 µg/kg

- pantothenic acid, 97.2-555 µg/kg calcium, 42-4,167 µg/kg phosphorus, 555-2,778 µg/kg magnesium, 6.9-139 µg/kg zinc, 0.28-4.17 µg/kg selenium, 11.1-208.3 µg/kg manganese, 0.03-2.78 µg/kg chromium, 0.01-1.39 µg/kg molybdenum, 55.6-4,167 µg/kg potassium, 278-6,944 µg/kg citrus fruit peel bioflavanoids, 139-6,944 µg/kg arginine, 135-5,555 µg/kg cysteine, 69-5,555 µg/kg inositol, 69-5,555 µg/kg carnitine, 22.2-972 µg/kg coenzyme Q<sub>10</sub>, and 22.2-972 µg/kg pycnogenol.
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18. The method of claim 11, wherein the nutritional composition further comprises 2.31-694 µg/kg vitamin A, 0.023-0.278 µg/kg vitamin D<sub>3</sub>, 0.023-0.278 µg/kg vitamin E, 48.6-97.2 µg/kg vitamin B<sub>1</sub>, 48.6-97.2 µg/kg vitamin B<sub>2</sub>, 312.5-3,190 µg/kg niacin, 0.6-4.17 µg/kg folic acid, 0.14-0.69 µg/kg vitamin B<sub>12</sub>, 0.444-4.17 µg/kg biotin, 278-833 µg/kg pantothenic acid, 236-903 µg/kg calcium, 97.2-1,390 µg/kg phosphorus, 694-1,390 µg/kg magnesium, 41.7-111 µg/kg zinc, 0.42-3.47 µg/kg selenium, 13.9-45.1 µg/kg manganese, 0.07-2.78 µg/kg chromium, 0.03-1.04 µg/kg molybdenum, 111.1-2,778 µg/kg potassium, 694-3,472 µg/kg citrus fruit peel bioflavanoids, 1,389-4,167 µg/kg arginine, 1,111-2,778 µg/kg cysteine, 1,111-2,778 µg/kg inositol, 1,111-2,778 µg/kg carnitine, 41.7-486 µg/kg coenzyme Q<sub>10</sub>, and 41.7-486 µg/kg pycnogenol.
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19. The method of claim 11, wherein the nutritional composition further comprises 4.6 µg/kg vitamin A, 0.046 µg/kg vitamin D<sub>3</sub>, 0.046 µg/kg vitamin E, 97.2 µg/kg vitamin B<sub>1</sub>, 97.2 µg/kg vitamin B<sub>2</sub>, 625 µg/kg niacin, 1.25 µg/kg folic acid, 0.27 µg/kg vitamin B<sub>12</sub>, , 0.9 µg/kg biotin, , 555 µg/kg pantothenic acid, 486 µg/kg calcium, 208 µg/kg phosphorus, 555 µg/kg magnesium, 97.2 µg/kg zinc, 0.78 µg/kg selenium, 18.1 µg/kg manganese, 0.14 µg/kg chromium, 0.06 µg/kg molybdenum, 277.8 µg/kg potassium, 1,389 µg/kg citrus fruit peel bioflavanoids, 555 µg/kg arginine, 486 µg/kg cysteine, 486 µg/kg inositol, 486 µg/kg carnitine, 97.2 µg/kg coenzyme Q<sub>10</sub>, and 97.2 µg/kg pycnogenol.
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20. The method of claims 11 or 16, wherein the nutritional composition contains 27-34 % wt lysine, 14-16 % wt proline, and 42-47 % wt ascorbic acid.
21. The method of claims 11 or 16, wherein the mammal is a human.
22. The method of claims 11 or 16, wherein the nutritional composition is effective in reducing > about 5% bone healing time.
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23. The nutritional composition of claim 20, wherein the nutritional composition is effective in reducing > about 15% bone healing time.
24. The nutritional composition of claim 20, wherein the nutritional composition is effective in reducing > about 50% bone healing time.

25. The method of claims 11 or 16, wherein the step of administering is performed orally, intravenously or parenterally.
26. The method of claim 21, wherein the step of administering is performed orally.